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ACTION INR-07

INFO OCT-01 EUR-12 EA-06 ISO-00 OC-05 OES-03 TRSE-00

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FM AMEMBASSY BONN

TO SECSTATE WASHDC 7556

INFO AMEMBASSY LONDON

AMEMBASSY OTTAWA

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AMEMBASSY ROME

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E. O. 11652: N/A

TAGS: PINR, TECH, TSPA, ETEL, GW, XT

SUBJECT: FOREIGN SMALL EARTH-STATION TECHNOLOGY
ASSESSMENT

REF: STATE 282812

1. SUMMARY: IN OUR VIEW, SMALL EARTH STATION TECHNOLOGY
USED BY EUROPE IN THE 1985 PERIOD WILL BE DETERMINED
BY EUROPEAN SPACE EXPERIMENTS NOT YET COMPLETE, AND
THE CONSEQUENT MARKET BY POLITICAL DECISIONS NOT YET
MADE. THE US SHARE OF THIS MARKET WILL BE INFLUENCED
BY NON-TECHNOLOGICAL FACTORS. EMBASSY HAS POUCHED
PUBLICATIONS TO AID ASSESSMENT. END SUMMARY.

2. THE FRG IS FIRMLY LINKED TO INTERNATIONAL PROGRAMS
FOR SATELLITE TELECOMMUNICATIONS. CONSEQUENTLY, THE
MARKET FOR SMALL EARTH STATIONS, THE SYSTEMS AND
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TECHNOLOGIES TO BE EMPLOYED IN THE 1975-1985 PERIOD,
THE INSTITUTIONS AND COMPANIES CAPABLE OF MAKING A CON-

TRIBUTION AND THE VARIOUS COMPETITIVE FACTORS MUST BE EVALUATED IN THIS CONTEXT. FORTUNATELY, THE PARTICIPANTS IN THIS POLITICALLY-CHARGED, HIGHLY-COMPETITIVE AREA OF TECHNOLOGY HAVE BEEN ARTICULATE. MOST OF THE DATA REQUESTED BY REFTEL IS AVAILABLE IN WASHINGTON TO THOSE USG AGENCIES MONITORING RELEVANT EUROPEAN PROGRAMS. SENSITIVE COMMERCIAL DATA ARE NOT AVAILABLE. IT IS PROBABLY PREMATURE TO ATTEMPT A FORECAST INTO THE 1985 PERIOD. THE RESULTS OF SYMPHONIE AND THE ESRO/ESA PROGRAMS ARE NOT YET AVAILABLE NOR IS THERE YET POSITIVE EVIDENCE OF THE POLITICAL WILL AMONG THE EUROPEANS TO MAKE THE DIFFICULT FINANCIAL DECISIONS REQUIRED FOR CONSTRUCTION OF A EUROPEAN REGIONAL SATELLITE COMMUNICATIONS SYSTEM IN A PERIOD WHICH MAY BE DOMINATED BY AN EVEN MORE SUCCESSFUL INTELSAT SYSTEM. WE ARE CONFIDENT, HOWEVER, THAT THE FRG WOULD ASSOCIATE ITSELF WITH A REGIONAL SYSTEM -- IF ITS EUROPEAN PARTNERS SO DECIDE. IN ANY EVENT, THE GERMAN AEROSPACE AND RELATED INDUSTRIES WILL MAKE A STRONG AND COMPETENT BID FOR THEIR SHARE OF THE MARKET FOR SMALL GROUND STATIONS WHETHER REGIONAL OR INTERNATIONAL. IN EITHER CASE CONSIDERATIONS OF POLITICAL, FISCAL AND GEOGRAPHIC BALANCE WILL WEIGH HEAVILY IN THE BIDDING AND CONTRACT-AWARD PROCESS.

3. EMBASSY CONTACTED FRG MINISTRIES FOR POST AND TELECOMMUNICATIONS AND FOR RESEARCH AND TECHNOLOGY, AS WELL AS SIEMENS, STANDARD ELEKTRIK LORENZ (SEL) AND AEG-TELEFUNKEN TO OBTAIN INFORMATION REQUESTED REFTEL. MANY OF DATA REQUESTED, PARTICULARLY THOSE RELATED TO COMMERCIAL TERMS AND CONDITIONS OR INVOLVING PROPRIETARY INFORMATION ABOUT RESEARCH PROGRAMS, ARE NOT AVAILABLE.

4. GERMAN PROGRAMS INVOLVING EXISTING AND PLANNED GROUND STATIONS FOR COMMUNICATIONS WITH GEO-STATIONARY SATELLITES INCLUDE INTELSAT, SYMPHONIE, THE ESA EUROPEAN COMMUNICATIONS SATELLITE SYSTEM, STUDIES LIMITED OFFICIAL USE
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OF A POSSIBLE DIRECT BROADCAST TV SATELLITE, NATO/ SATCOM, AND VARIOUS NAVIGATIONAL AND METEOROLOGICAL SATELLITE SYSTEMS.

5. THE FRENCH-GERMAN SYMPHONIE EXPERIMENTAL COMMUNICATIONS SATELLITE INVOLVES TWO EARTH STATIONS, ONE AT RAISTING (FRG) AND ONE IN PLEUMEUR-BODOU (FRANCE). THE GERMAN STATION WAS BUILT BY AEG-TELEFUNKEN (PRIME CONTRACTOR), KRUPP, LABORATOIRE CENTRAL DE TELECOMMUNICATIONS (FRENCH) AND BELL TELEPHONE

(BELGIUM). THE FRENCH STATION WAS BUILT BY SIEMENS
AND TELSPACE. THE "SIEMENS REVIEW", NO. 8/1974,
CONTAINS A DESCRIPTION. OTHER USEFUL DATA ARE GIVEN IN
"EUROPE IN SPACE", AN ESRO PUBLICATION (1974). BOTH
DOCUMENTS HAVE BEEN POUCHED TO INR, ATTENTION:CROWLEY.

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6. THE PROPOSED EUROPEAN COMMUNICATIONS SATELLITE
SYSTEM HAS BEEN STUDIED BY A NUMBER OF GERMAN FIRMS,
INCLUDING ERNO RAUMFAHRTTECHNIK. THIS EUROPEAN SYSTEM
WOULD HAVE 29 EARTH STATIONS WITH 16.5 METER ANTENNAS.
A DESCRIPTION OF THE PLAN IS CONTAINED IN "ELECTRICAL
COMMUNICATION", NO. 3/1974, ALSO POUCHED.

7. THE FRG MINISTRY FOR RESEARCH AND TECHNOLOGY

(TECHMIN) AWARDED CONTRACTS TO MESSERSCHMITT-BOELKOW-BLOHM (MBB), SIEMENS AND STANDARD ELEKTRIK LORENZ (SEL) FOR SYSTEMS STUDIES OF A NATIONAL DIRECT-BROADCAST TELEVISION SATELLITE. DATA ABOUT PLANS FOR THIS SYSTEM IS CONTAINED IN "SIEMENS REVIEW", NO. 5/1974 AND IN THE ISSUE OF "ELECTRICAL COMMUNICATIONS" MENTIONED ABOVE (BOTH POUCHED).
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8. OTHER RELEVANT PUBLICATIONS WILL BE POUCHED AS RECEIVED. THESE DOCUMENTS PROVIDE DATA ABOUT THE DETAILS OF EACH SYSTEM AND ABOUT THE PLANNED (OR MEASURED) TECHNICAL PERFORMANCE OF COMPONENTS.

9. RESEARCH AND DEVELOPMENT POSSIBLY RELEVANT TO GROUND STATIONS FOR GEO-STATIONARY SATELLITES IS CONDUCTED BY MANY INSTITUTES AND INDUSTRIAL LABORATORIES IN THE FRG. WORK-LOAD AND MANPOWER LIMITATIONS AND COMMERCIAL SECRECY MAKE IT IMPOSSIBLE FOR THE EMBASSY TO OBTAIN, COMPILE AND EVALUATE DETAILED DATA ON THESE PROGRAMS. WE SUGGEST THAT GERMAN TECHNOLOGICAL COMPETENCE IN THIS AREA MAY BEST BE ASSESSED BY US AGENCIES WHO ARE MONITORING THE PERFORMANCE OF THE FRENCH-GERMAN SYMPHONIE SATELLITE, THE NATO SATCOM II, SPACELAB AND OTHER EUROPEAN PROJECTS.

10. MOST RELEVANT R&D IS CONDUCTED BY THE FOLLOWING ORGANIZATIONS AND COMPANIES:

A. DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND RAUMFAHRT (GERMAN AEROSPACE RESEARCH CENTER - DFVLR)

ZENTRALABTEILUNG SATELLITENBETRIEB (SATELLITE OPERATIONS CENTER),
OBERPFAFFENHOFEN

B. DFVLR,
ZENTRALE DEUTSCHE BODENSTATION (COMMAND STATION),
WEILHEIM/LICHTENAU

C. MAX-PLANCK-INSTITUTES FOR ASTRONOMY, BONN AND HEIDELBERG

D. INDUSTRIEANLAGEN-BETRIEBSGESELLSCHAFT (IABG) (GOVERNMENT-OWNED),
MUNICH.

E. MESSERSCHMITT-BOELKOW-BLOHM (MBB);
ALLGEMEINE DEUTSCHE ELEKTRICITAETS-GESELLSCHAFT
(AEG) - TELEFUNKEN
ENTWICKLUNGSRING NORD (ERNO)
STANDARD-ELEKTRIK LORENZ (SEL)

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SIEMENS.

11. THE FRG 1975 DRAFT BUDGET PROVIDES DM 16 MILLION FOR OPERATION OF THE GERMAN GROUND, TEST AND SATELLITE CONTROL STATIONS. THIS DRAFT BUDGET ALSO PROVIDES DM 4 MILLION AS THE FRG SHARE OF GROUND STATIONS TO BE BUILT AT MICHELSTADT/ODENWALD AND USINGEN/TAUNUS FOR THE ESA EUROPEAN COMMUNICATIONS SATELLITE SYSTEM. THIS SUM WILL PROBABLY BE DELETED. TECHMIN OFFICIALS EXPLAIN THAT THE FRG OFFERED THREE SITES FOR THE GROUND STATION TO BE USED IN THE EXPERIMENTAL PHASE OF THE ESRO ORBITAL TEST SATELLITE (OTS) PROGRAM. TWO OF THE SITES, ODENWALD AND TAUNUS, WERE NOT SATISFACTORY BECAUSE OF FREQUENCY AND BEAM INTERFERENCE PROBLEMS. THE THIRD GERMAN OFFER, WEILHEIM, CAME TOO LATE. ESRO/ESA SELECTED AN ITALIAN SITE. PROCUREMENT OF LAND FOR A GROUND STATION IN THE FRG AT USINGEN WILL CONTINUE. THIS STATION -- IF CONSTRUCTED -- WOULD BE OPERATED BY THE FRG POST/TELECOMMUNICATIONS MINISTRY WITH A SMALL CONTRIBUTION FOR RESEARCH AND DEVELOPMENT FROM THE TECHMIN.

12. AVAILABLE PUBLICATIONS DO NOT OFFER COMPLETE INSIGHT INTO THE SPECIFIC TECHNICAL OBJECTIVES OF GERMAN RESEARCH IN THIS AREA. A CATALOGUE OF GOVERNMENT SUPPORT FOR R&D SUGGESTS THAT 20 PROJECTS IN THE PERIOD 1970-1975 FOR GROUND INSTALLATIONS SERVING SYMPHONIE,

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HELIOS, AEROS AND OTHER GERMAN SPACE PROJECTS WERE ALLOCATED A TOTAL OF APPROXIMATELY DM 100 MILLION (ROUGHLY \$4L MILLION). THE PUBLICATIONS POUCHED PROVIDE SOME DETAILS AND CONFIRM THAT THE FRG SUPPORTS A WIDE-RANGE OF RELEVANT R&D TO MEET THE COMMUNICATIONS OBJECTIVES ESTABLISHED BY INTERNATIONAL SATELLITE PROGRAMS. THESE DATA REINFORCE THE EMBASSY'S CONCLUSION THAT GERMAN R&D IN THIS AREA OFFERS FEW SURPRISES TO THE TECHNICALLY-QUALIFIED OBSERVERS WHO NOW MONITOR EUROPEAN SPACE PROGRAMS.

13. "EUROPE IN SPACE" CONTAINS USEFUL DATA ABOUT THE CAPABILITIES AND THE COMPETENCE OF THE GERMAN AND EUROPEAN AEROSPACE FIRMS NOW ACTIVE IN SATELLITE TELECOMMUNICATIONS PROJECTS, INCLUDING THE LINE-UPS OF PRIME AND SUB-CONTRACTORS WHICH HAVE LIMITED OFFICIAL USE

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EMERGED TO DATE, AND THE PRODUCTS SUPPLIED. WE HAVE NO DATA ABOUT SENSITIVE COMMERCIAL INTER-RELATIONSHIPS. NASA, DOD OFFICIALS, AND OTHERS MONITORING CONTRACT AWARD PROCEDURES FOR SUCH PROJECTS AS SYMPHONIE, NATO/ INSIDER'S VIEW OF THE PROCESS. THE EMBASSY'S EXPERIENCE WITH MULTI-NATIONAL EUROPEAN TECHNOLOGICAL PROJECTS SUGGESTS THAT POLITICAL FACTORS WOULD BE IMPORTANT, THAT CONSIDERATIONS OF EQUITABLE FINANCIAL RETURN AND GEOGRAPHIC DISTRIBUTION WOULD PLAY A ROLE IN THE CONTRACTING PROCESS.

14. IN THE EMBASSY'S VIEW, THE FUTURE MARKET FOR SMALL GROUND STATIONS WILL BE DETERMINED BY THE RESULTS OF

PENDING EUROPEAN EXPERIMENTAL COMMUNICATIONS SATELLITE PROJECTS AND BY THE CONSEQUENT POLITICAL DECISIONS REACHED BY THE EUROPEAN GOVERNMENTS. OUR CONTACTS IN THE TECHMIN SEEM, AT THE MOMENT, SURPRISINGLY PESSIMISTIC ABOUT THE POSSIBILITY OF A EUROPEAN REGIONAL SATELLITE TELECOMMUNICATIONS PROGRAM. AN EVALUATION OF THE SYMPHONIE PROGRAM IS NOT YET POSSIBLE. THE OTS PROGRAM IS NOT YET EFFECTIVELY UNDERWAY AND THE OPERATIONAL PHASE LEADING TOWARD A EUROPEAN REGIONAL SYSTEM IS NOT SCHEDULED UNTIL THE EARLY 1980'S. TECHMIN OFFICIALS SEEM PREOCCUPIED BY POSSIBLE IMPENDING CLASHES BETWEEN THE "DEVELOPERS" (I.E. THE SPACE-ORIENTED OFFICIALS) AND THE USERS AND OPERATORS (PROBABLY THE EUROPEAN POST AND TELECOMMUNICATIONS ADMINISTRATIONS). MULTI-NATIONALLY, THE POTENTIAL OPPONENTS ARE ESA VS ONE OR MORE OF THE FOLLOWING: CETS, CEPT AND/OR EBU. THE LATTER ARE PRESUMED TO BE MORE DEDICATED TO THE LOWEST-COST, MOST-EFFECTIVE SYSTEM, WHATEVER THAT MAY BE IN THE LATE 1980'S, AND LESS INSPIRED BY CONSIDERATIONS OF REGIONAL/NATIONAL PRESTIGE AND INDUSTRIAL PARTICIPATION IN THE HIGHEST TECHNOLOGIES. IN THE VIEW OF OUR SPACE-MINDED CONTACTS, IT IS SIMPLY TOO SOON TO PREDICT THE OUTCOME. THEY SEE A CLOUD ON THE HORIZON BUT WILL CONTINUE FORCEFULLY TO SUPPORT SATELLITE COMMUNICATIONS SYSTEMS AND TO DEMAND THEIR SHARE OF THE INDUSTRIAL ACTION.

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15. THE EMBASSY WOULD BE PLEASED TO RESPOND TO QUESTIONS IF, AFTER CONSIDERATION OF THESE DATA AND THE ADDITIONAL INFORMATION AVAILABLE TO WASHINGTON AGENCIES, THERE REMAIN SPECIFIC GAPS .
HILLENBRAND.

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